



MENINGOCOCCAL DISEASE

CRUDE DATA	
Number of Cases	37
Annual Incidence ^a	
LA County	0.38
California	--
United States	--
Age at Diagnosis	
Mean	41.5
Median	40.5
Range	3-80

^aCases per 100,000 population.

DESCRIPTION

Meningococcal disease occurs most often as meningitis, an infection of the cerebrospinal fluid (CSF) or meningococcemia, an infection of the bloodstream. It is transmitted through direct or droplet contact with nose or throat secretions of persons colonized in the upper respiratory tract with the *Neisseria meningitidis* bacterium. Common symptoms include sudden onset of fever, headache, nausea, vomiting, stiff neck, petechial rash and lethargy which can progress to overwhelming sepsis, shock and death within hours. Despite effective antibiotic therapy, the mortality rate remains between 10%-15%. Long-term sequelae include significant neurologic or orthopedic complications such as deafness or amputation. Meningococcal disease affects all age groups but occurs most often in infants. Of the 13 serogroups, only A, C, Y, and W-135 are vaccine-preventable.

For the purpose of surveillance, the LAC DPH defines reports of invasive meningococcal disease as confirmed when *N. meningitidis* has been isolated from a normally sterile site (e.g., blood or CSF). In the absence of a positive culture, reports are defined as probable in the setting of clinical symptoms consistent with invasive meningococcal disease and when there is evidence of the bacteria in a normally sterile site by gram staining, polymerase chain reaction (PCR) analysis, or CSF antigen test.

Three vaccines are available in the US that protect against serogroups A, C, Y, and W-135 but not B. Two quadrivalent conjugate vaccines, MenACWY-D (Menactra®) and MenACWY-CRM (Menveo®), are licensed for use in persons aged 2 to 55 years; MenACWY-D is also licensed for use in children age

9 through 23 months. Both vaccines are recommended for all adolescents between ages 11-18 years, preferably at 11 or 12 years, and for those between 2-55 years who are at increased risk for meningococcal disease. An additional booster dose is needed if the primary dose was given before 16 years old. Routine vaccination is recommended for college freshman living in dormitories, persons at increased risk for meningococcal disease. Quadrivalent meningococcal polysaccharide vaccine (Menomune®) is approved for use among those ≥2 years old and is acceptable for use when MCV4 and MenACWY-CRM are not available (e.g., for those >55 years old).

Antimicrobial chemoprophylaxis of close contacts of sporadic cases of meningococcal disease remains the primary means for prevention of meningococcal disease among close contacts, who include: a) household members, b) daycare center contacts, and c) anyone directly exposed to the patient's oral secretions (e.g., through kissing, mouth-to-mouth resuscitation, endotracheal intubation, or endotracheal tube management). Because the rate of secondary disease for close contacts is highest during the first few days after onset of disease in the primary patient, antimicrobial chemoprophylaxis should be administered as soon as possible (ideally within 24 hours after the case is identified). Conversely, chemoprophylaxis administered > 10 days after onset of illness in the index case-patient is probably of limited or no value. Prophylactic treatment and follow-up of close contacts are routinely handled by the LAC DPH, Community Health Services.

2011 TRENDS AND HIGHLIGHTS

- The incidence of meningococcal disease rose 37% this past year from 0.27 per 100,000 in 2010 to 0.38 per 100,000, reversing a general decline occurring since 2001 when there was a peak of 0.64 cases per 100,000 (Figure 1).
- There were no cases reported among infants <1 yo. The highest incidence occurred among 35-44 yo adults. This deviates from the typical distribution curve for meningococcal disease, where the peak incidence occurs among <1 yo. (Figure 2).
- The incidence of meningococcal disease among blacks, 1.4 per 100,000, is at its highest in recent decades (Figure 4). There was a 75% increase from 2010, when there were 0.08 cases per 100,000.
- There were 36 (97%) culture-confirmed cases: 26 (3%) cultured from blood, 6 (16.7%) from cerebrospinal fluid (CSF), and 4 (11%) from both CSF. One case was



probable by PCR. Thirty-five of the culture-confirmed cases (97%) had serogroup identified; 23 (66%) were serogroup C, 8 (23%) serogroup Y, 4 (11%) serogroup B, and 1 (3%) serogroup W-135. Serogroup C accounted for more cases than usual (Figure 7).

- The case fatality rate, 16% (n=6), is higher than what has been usually recorded for LAC.
- In March 2011, an outbreak of serogroup C meningococcal disease occurred among 4 individuals with associations to the homeless. One fatality occurred. Early prophylaxis was disseminated to close contacts and homeless shelter staff and health alerts were distributed to local shelters (see 2011 Special Reports for details).



**Reported Meningococcal Disease Cases and Rates* per 100,000 by Age Group, Race/Ethnicity, and SPA
Los Angeles County, 2007-2011**

	2007 (N=24)			2008 (N=30)			2009 (N=21)			2010 (N=26)			2011 (N=37)		
	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000	No.	(%)	Rate/ 100,000
Age Group															
<1	3	12.5	2.0	3	10.0	2.1	1	4.8	0.7	2	7.7	1.4	0	0.0	0.0
1-4	3	12.5	0.5	1	3.3	0.2	1	4.8	0.2	2	7.7	0.3	1	2.7	0.2
5-14	1	4.2	0.1	6	20.0	0.4	1	4.8	0.1	1	3.8	0.1	1	2.7	0.1
15-34	6	25.0	0.2	6	20.0	0.2	10	47.6	0.4	8	30.8	0.3	12	32.4	0.4
35-44	5	20.8	0.3	5	16.7	0.3	0	0.0	0.0	4	15.3	0.3	10	27.0	0.7
45-54	1	4.2	0.1	3	10.0	0.2	4	19.0	0.3	5	19.2	0.4	3	8.1	0.2
55-64	3	12.5	0.3	4	13.3	0.4	4	19.0	0.4	1	3.8	0.1	5	13.5	0.5
65+	2	8.3	0.2	2	6.7	0.2	0	0.0	0.0	3	11.5	0.3	5	13.5	0.5
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	
Race/Ethnicity															
Asian	1	4.2	0.1	1	3.3	0.1	0	0.0	0.0	1	3.8	0.1	4	10.8	0.3
Black	3	12.5	0.4	4	13.3	0.5	4	19.0	0.5	7	26.9	0.8	12	32.4	1.4
Hispanic	11	45.8	0.2	20	66.7	0.4	9	42.9	0.2	11	42.3	0.2	11	29.7	0.2
White	9	37.5	0.3	4	13.3	0.1	7	33.3	0.2	7	26.9	0.2	10	27.0	0.3
Other	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0	0	0.0	
Unknown	0	0.0		1	3.3		1	4.8		0	0.0		0	0.0	
SPA															
1	1	4.2	0.3	2	6.6	0.6	1	4.8	0.3	1	3.8	0.3	1	2.7	0.3
2	4	16.7	0.2	3	10.0	0.1	5	23.8	0.2	3	11.5	0.1	9	24.3	0.4
3	1	4.2	0.1	4	13.3	0.2	1	4.8	0.1	3	11.5	0.2	2	5.4	0.1
4	3	12.5	0.2	6	20.0	0.5	2	9.5	0.2	2	7.7	0.2	5	13.5	0.4
5	1	4.2	0.2	5	16.7	0.8	2	9.5	0.3	2	7.7	0.3	1	2.7	0.2
6	7	29.2	0.7	7	23.3	0.7	5	23.8	0.5	6	23.1	0.6	9	24.3	0.8
7	4	16.7	0.3	2	6.7	0.1	2	9.5	0.1	3	11.5	0.2	4	10.8	0.3
8	3	12.5	0.3	1	3.3	0.1	3	14.3	0.3	6	23.1	0.5	6	16.2	0.5
Unknown	0	0.0		0	0.0		0	0.0		0	0.0		0	0.0	

*Rates calculated based on less than 19 cases or events are considered unreliable.



Figure 1. Incidence Rates of Meningococcal Disease
LAC and US, 1999-2011

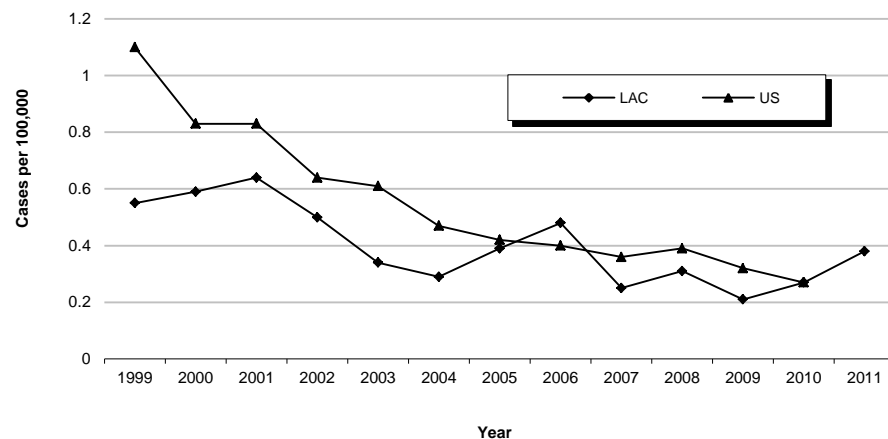


Figure 3. Percent Cases of Meningococcal Disease
by Race/Ethnicity, LAC, 2011 (N=37)

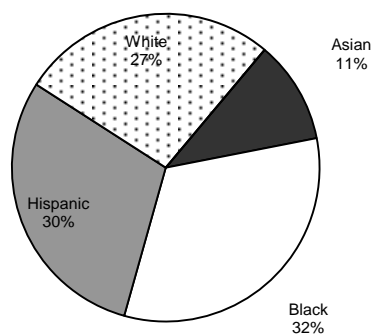


Figure 2. Incidence Rates of Meningococcal Disease Cases by Age Group,
LAC, 2011 (N=37)

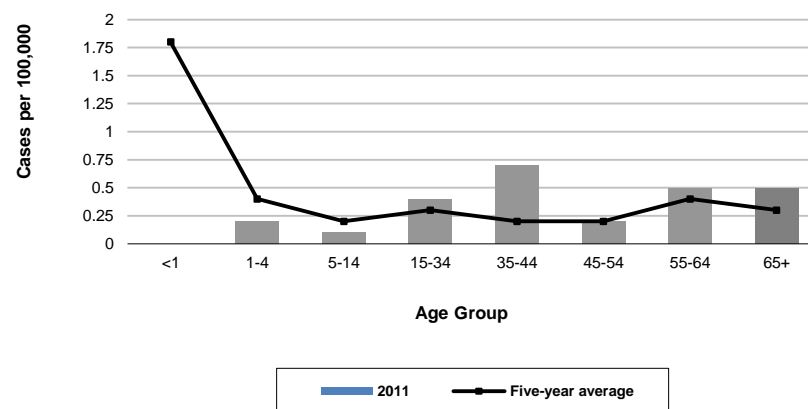


Figure 4. Incidence Rates of Meningococcal Disease Cases
by Race/Ethnicity, LAC, 2006-2011

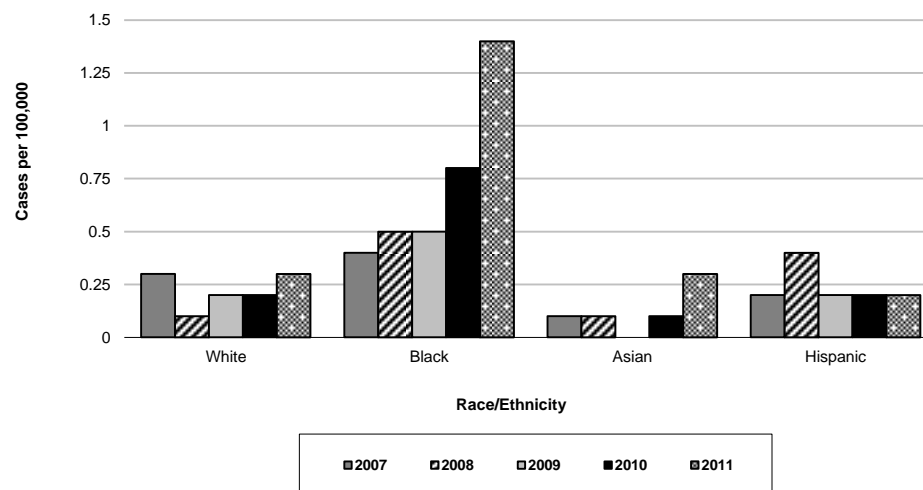




Figure 5. Reported Meningococcal Disease Cases
by Month of Onset, LAC, 2011 (N=37)

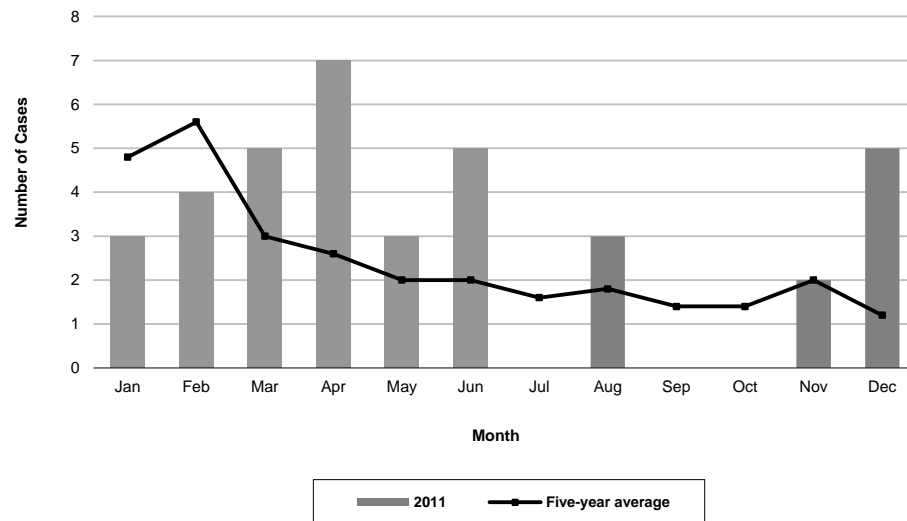


Figure 6. Incidence Rates of Meningococcal Disease by SPA
LAC, 2011 (N=37)

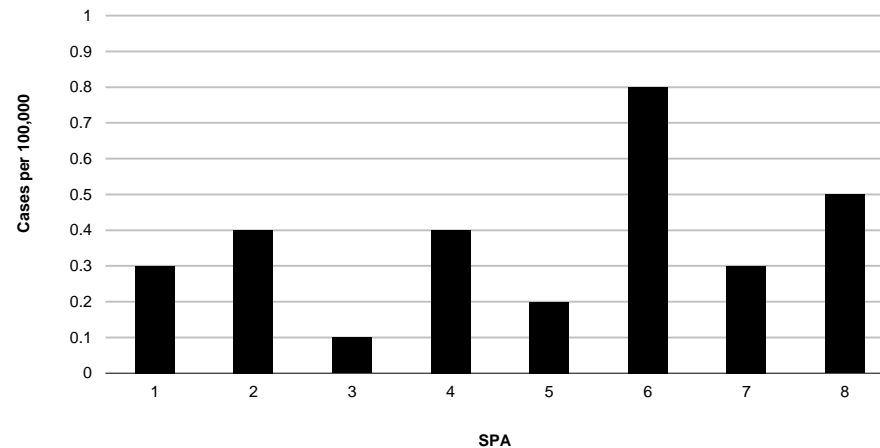


Figure 7. Meningococcal Disease by Serogroup
LAC, 2007-2011

